

PROJECT: 17BP.5.R.96 REFERENCE: B-4833

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY WAKE
PROJECT DESCRIPTION BRIDGE NO. 376 ON SR 2761
(WIMBERLY RD) OVER LITTLE BLACK CREEK

SITE DESCRIPTION 18+64.00 -L-

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4833	1	8

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

C.T. TANG, EI

CAROLINA DRILLING

G. EISTER

W. HAMILL

INVESTIGATED BY C.T. TANG, EI

DRAWN BY C.T. TANG, EI

CHECKED BY D. BROWN, PE

SUBMITTED BY D. BROWN, PE

DATE OCTOBER, 2017

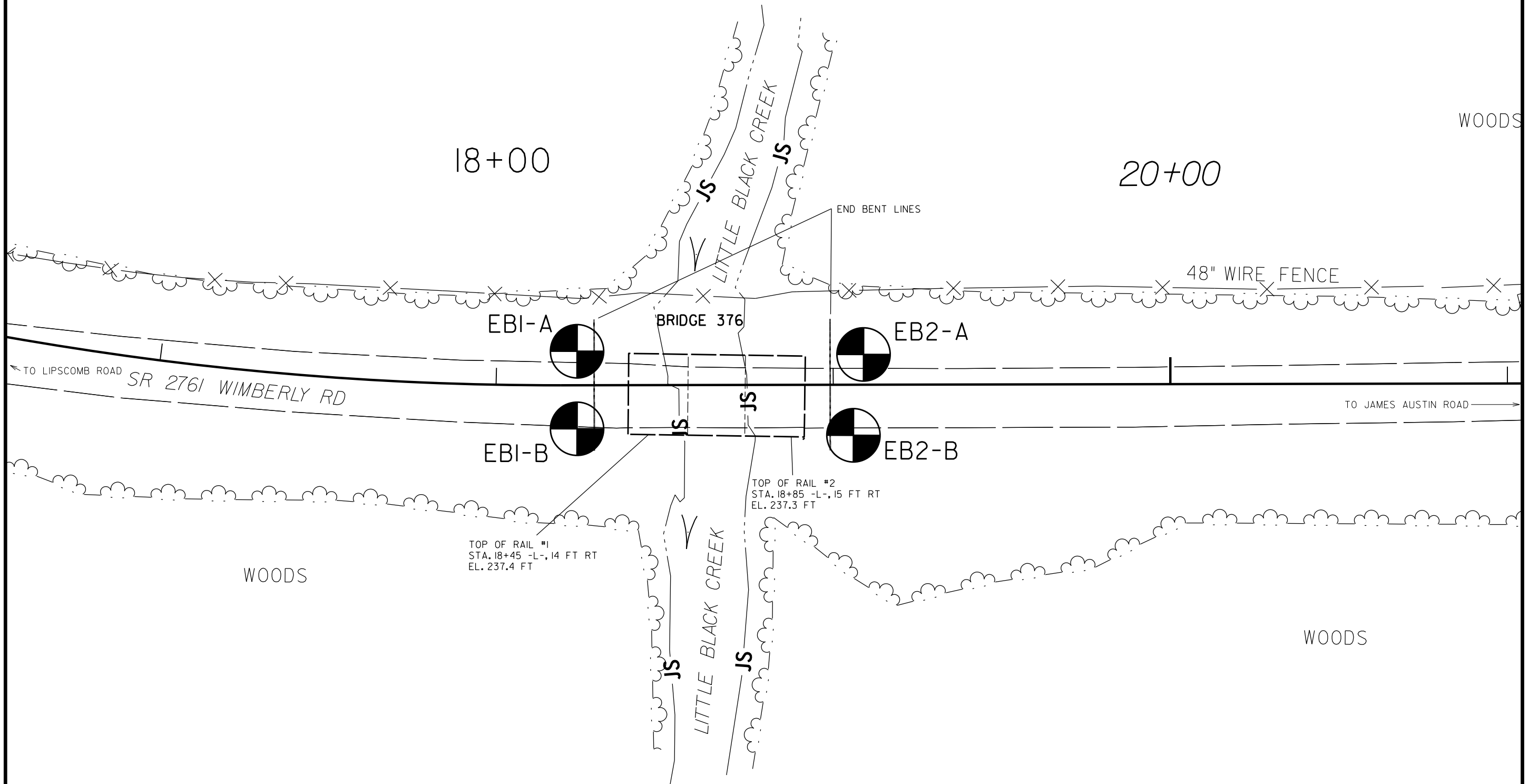
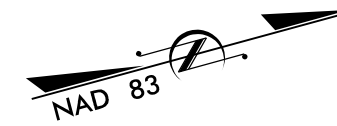
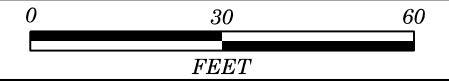


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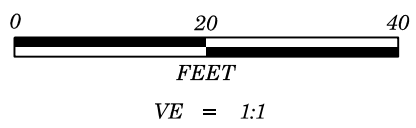
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**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

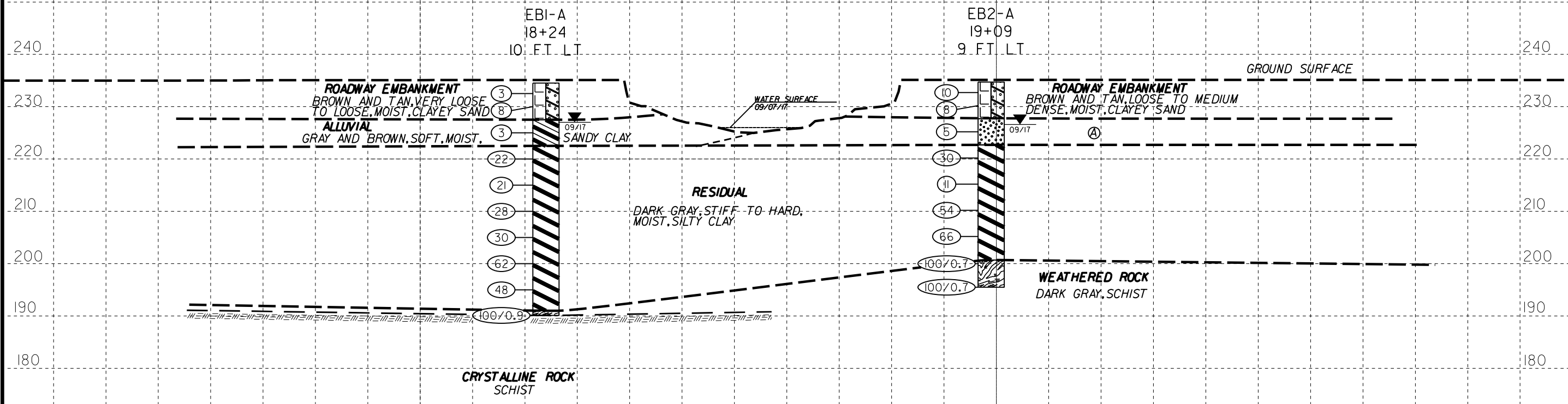
SITE PLAN



SKIEW = 90 DEG.



PROJECT REFERENCE NO.	SHEET NO.
B-4833	4
PROFILE ALONG -L- CENTERLINE	



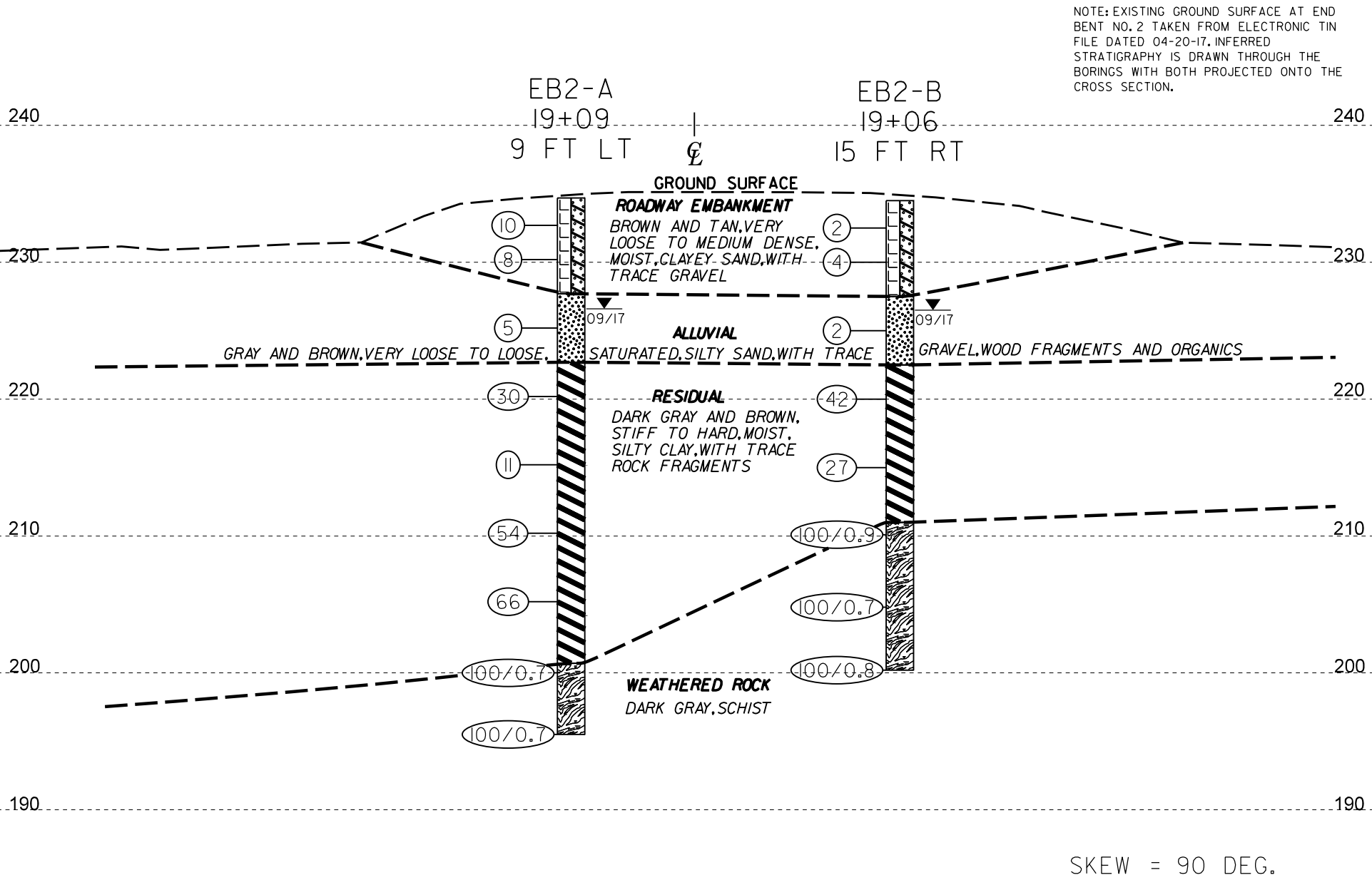
Ⓐ ALLUVIAL GRAY AND BROWN, LOOSE, SATURATED, SILTY SAND TRACE GRAVEL AND WOOD FRAGMENTS

NOTE: EXISTING GROUND SURFACE TAKEN FROM ELECTRONIC TIN FILE DATED 04-20-17. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE -L- CENTERLINE.

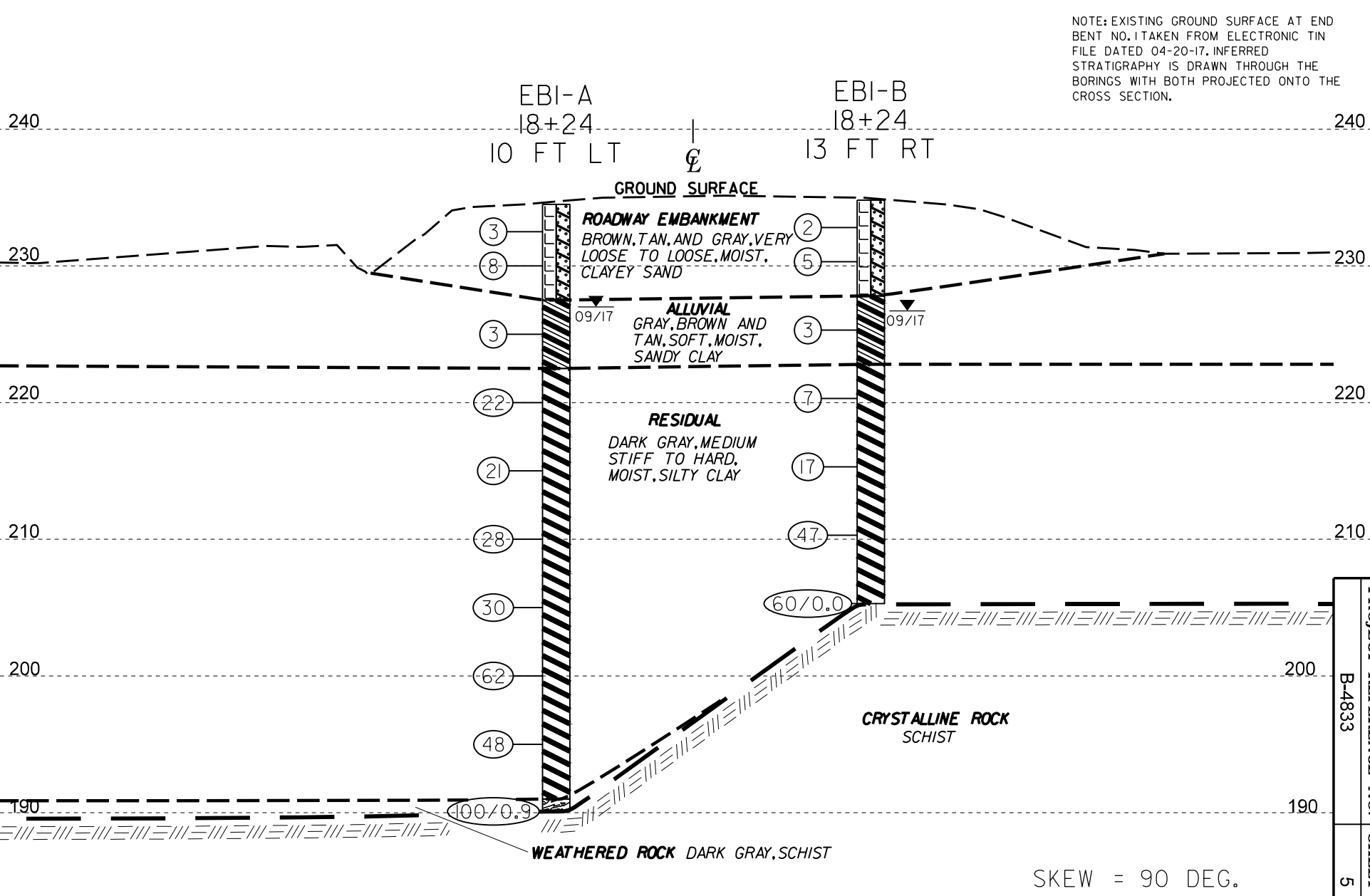
18+00

19+00

HORIZ. SCALE 0 (FEET) 10 20
 V.E. = 1:1
 CROSS SECTION AT END BENT #2



HORIZ. SCALE 0 (FEET) 10 20
 V.E. = 1:1
 CROSS SECTION AT END BENT #1



PROJECT REFERENCE NO. B-4833
 SHEET NO. 5

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.5.R.96		TIP B-4833		COUNTY WAKE		GEOLOGIST C.T. Tang										
SITE DESCRIPTION Bridge No. 376 on SR 2761 (Wimberly Road) over Little Black Creek							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 18+24		OFFSET 10 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 234.5 ft		TOTAL DEPTH 44.4 ft		NORTHING 646,893		EASTING 2,088,234										
DRILL RIG/HAMMER EFF./DATE BRI0674 CME-45C 89% 05/04/2016		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER G. Eister		START DATE 09/07/17		COMP. DATE 09/07/17		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
235														234.5	GROUND SURFACE	0.0
	233.5	1.0	1	2	1								M		ROADWAY EMBANKMENT	
	231.0	3.5	2	4	4								M		Brown and Tan, Clayey Sand	
230														227.5	ALLUVIAL	7.0
	226.0	8.5	1	1	2								M		Gray and Brown, Sandy Clay	
225														222.5	RESIDUAL	12.0
	221.0	13.5	4	9	13								M		Dark Gray, Silty Clay	
220																
	216.0	18.5	6	10	11								M			
215																
	211.0	23.5	8	14	14								M			
210																
	206.0	28.5	11	15	15								M			
205																
	201.0	33.5	12	35	27								M			
200																
	196.0	38.5	16	22	26								M			
195																
	191.0	43.5	41	59/0.4									M			
	190.1	44.4												191.0	WEATHERED ROCK	43.5
														190.1	Dark Gray, Schist	44.4
															Boring Terminated with Standard Penetration Test Refusal at Elevation 190.1 ft On Crystalline Rock (Schist)	

WBS 17BP.5.R.96		TIP B-4833		COUNTY WAKE		GEOLOGIST C.T. Tang										
SITE DESCRIPTION Bridge No. 376 on SR 2761 (Wimberly Road) over Little Black Creek							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 18+24		OFFSET 13 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 234.8 ft		TOTAL DEPTH 29.5 ft		NORTHING 646,887		EASTING 2,088,256										
DRILL RIG/HAMMER EFF./DATE BRI0674 CME-45C 89% 05/04/2016		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER G. Eister		START DATE 09/07/17		COMP. DATE 09/07/17		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
235														234.8	GROUND SURFACE	0.0
	233.8	1.0	1	1	1								M		ROADWAY EMBANKMENT	
	231.3	3.5	1	2	3								M		Brown and Gray, Clayey Sand	
230														227.8	ALLUVIAL	7.0
	226.3	8.5	1	1	2								M		Gray and Tan, Sandy Clay	
225														222.8	RESIDUAL	12.0
	221.3	13.5	3	3	4								M		Dark Gray, Silty Clay	
220																
	216.3	18.5	6	8	9								M			
215																
	211.3	23.5	21	24	23								M			
210																
	206.3	28.5	26	36	60/0.0									205.3	Boring Terminated with Standard Penetration Test Refusal at Elevation 205.3 ft On Crystalline Rock (Schist)	

NCDOT BORE DOUBLE B4833_GEO_BRDG0376_BH.GPJ NC_DOT.GDT 10/18/17

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.5.R.96		TIP B-4833		COUNTY WAKE		GEOLOGIST C.T. Tang											
SITE DESCRIPTION Bridge No. 376 on SR 2761 (Wimberly Road) over Little Black Creek							GROUND WTR (ft)										
BORING NO. EB2-A		STATION 19+09		OFFSET 9 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 234.7 ft		TOTAL DEPTH 39.2 ft		NORTHING 646,975		EASTING 2,088,258											
DRILL RIG/HAMMER EFF./DATE BRI0674 CME-45C 89% 05/04/2016			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
DRILLER G. Eister		START DATE 09/07/17		COMP. DATE 09/07/17		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
235															234.7	GROUND SURFACE	0.0
	233.7	1.0	5	6	4											ROADWAY EMBANKMENT	
	231.2	3.5	4	4	4											Brown and Tan, Clayey Sand, with Trace Gravel	
230																	
	226.2	8.5	1	1	4										227.7	ALLUVIAL	7.0
225																Gray and Brown, Silty Sand, with Trace Gravel and Wood Fragments	
	221.2	13.5	11	11	19										222.7	RESIDUAL	12.0
220																Dark Gray and Brown, Silty Clay with Trace Rock Fragments	
	216.2	18.5	4	4	7												
215																	
	211.2	23.5	11	23	31												
210																	
	206.2	28.5	23	31	35												
205																	
	201.2	33.5	28	50	50/0.2										200.7	WEATHERED ROCK	34.0
200																Dark Gray, Schist	
	196.2	38.5	38	62/0.2											195.5	Boring Terminated at Elevation 195.5 ft In Weathered Rock (Schist)	39.2

WBS 17BP.5.R.96		TIP B-4833		COUNTY WAKE		GEOLOGIST C.T. Tang											
SITE DESCRIPTION Bridge No. 376 on SR 2761 (Wimberly Road) over Little Black Creek							GROUND WTR (ft)										
BORING NO. EB2-B		STATION 19+06		OFFSET 15 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 234.5 ft		TOTAL DEPTH 34.3 ft		NORTHING 646,967		EASTING 2,088,280											
DRILL RIG/HAMMER EFF./DATE BRI0674 CME-45C 89% 05/04/2016			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
DRILLER G. Eister		START DATE 09/07/17		COMP. DATE 09/07/17		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)		
235															234.5	GROUND SURFACE	0.0
	233.5	1.0	1	1	1											ROADWAY EMBANKMENT	
	231.0	3.5	1	2	2											Brown and Tan, Clayey Sand, with Trace Gravel	
230																	
	226.0	8.5	2	1	1										227.5	ALLUVIAL	7.0
225																Gray and Brown, Silty Sand, with Trace Organics	
	221.0	13.5	10	21	21										222.5	RESIDUAL	12.0
220																Dark Gray and Brown, Silty Clay	
	216.0	18.5	6	10	17												
215																	
	211.0	23.5	41	59/0.4											211.0	WEATHERED ROCK	23.5
210																Dark Gray, Schist	
	206.0	28.5	17	51	49/0.2												
205																	
	201.0	33.5	31	69/0.3											200.2	Boring Terminated at Elevation 200.2 ft In Weathered Rock (Schist)	34.3

NCDOT BORE DOUBLE B4833_GEO_BRDG0376_BH.GPJ NC_DOT.GDT 10/18/17

SITE PHOTOGRAPH

BRIDGE 376



PHOTOGRAPH NO.1. VIEW LOOKING WEST.